

The PCS and Emerging Technologies dockets serve as reminders that radio spectrum is a limited resource with seemingly unlimited demands for its use. The Commission's assignments should encourage the best and most efficient use of spectrum.

The heavy use of 2 GHz spectrum by incumbent users in some parts of the United States makes it likely that some PCS licensees will receive authorization for spectrum blocks that are congested. The presence of incumbent microwave paths will make some spectrum blocks less useful than a 20 MHz block of clear spectrum.^{27/} Therefore, Comcast encourages the Commission to allow such spectrum constrained PCS licensees to petition for access to additional spectrum from the spectrum reserve.^{28/} When the incumbent microwave user later vacates spectrum within the PCS licensee's block, as will ultimately happen, the PCS licensee would then be required to release the reserve spectrum.

It is technologically and practically feasible to authorize four PCS providers per LATA with 20 MHz of spectrum each. Given the proposed PCS spectrum allocation,

^{27/} Comcast supports the Commission's proposal that PCS providers be allowed to negotiate relocation agreements with incumbent users of 2 GHz frequencies. Marketplace forces should be allowed to produce equitable settlements.

^{28/} Frequency agility capabilities will allow spectrum constrained PCS licensees adequate access to spectrum in the reserve.

Comcast's proposal will produce the most competition among PCS providers and existing services, and the most diverse services possible within each market.

B. The Commission Should Permit Intersystem Operability and Spectrum Swaps

Comcast urges the Commission to allow PCS licensees to coordinate the development of their systems. Some services may require aggregation of additional spectrum to develop and remain economically viable. Thus, PCS providers should be permitted to interoperate with other PCS, cellular or other spectrum licensees upon approval by the Commission.^{29/} For example, a PCS provider may find it desirable to negotiate interoperation agreements with a cellular provider or other PCS provider in the same market so that the PCS provider has access to other mobile spectrum. The Commission should allow such arrangements if they are spectrum efficient and make economic sense. Examples of PCS/cellular intersystem operability might include agreements to engage in joint-selling and operate joint facilities, the operation of "dual mode" phones^{30/} and

^{29/} PCS licensees should be permitted to interoperate with up to 40 MHz of spectrum upon such approval.

^{30/} Although the Commission states that it is reluctant to require intersystem operability at this time, Comcast believes that the technical standards for PCS should permit interoperability of handsets between public and private modes. In other words, the technical standards should allow handsets to be operable in communication with the services of one or

(continued...)

agreements to share intelligent network functionality to permit call delivery to a single phone number. As PCS develops, this flexibility will allow providers to deliver services more efficiently.^{31/}

Comcast also proposes that the Commission allow licensees to trade ownership interests, as was permitted in cellular licensing.^{32/} Licensees should be free to consummate such "spectrum swaps" within the 180 day period after licenses are awarded. This policy would foster establishment of commercially viable PCS markets, without encouraging insincere applicants. As in cellular, the Commission should permit trading parties to exchange cash when they can demonstrate that the amount equalizes the value of the market interests that are traded.

^{30/} (...continued)
more PCS providers or in communication with privately-owned stations based in residences and/or businesses. These technical standards should also provide that public/private mode handsets should be operable over the entire 1850-1990 MHz band. See Notice, 7 FCC Rcd at 5728.

^{31/} If PCS services are to reach beyond dense urban areas, then interoperability is imperative.

^{32/} See Amendment of the Commission's Rule To Allow the Selection from Among Mutually Exclusive Competing Cellular Applications Using Random Selection or Lotteries Instead of

IV. PCS SERVICE AREAS

A. LATA-Sized PCS Licenses Would Best Effectuate Commission Goals

Comcast concurs with the Commission's determination that PCS service areas should be larger than those initially licensed in cellular.^{33/} Many of the 734 cellular markets are likely to be too small for the economic provision of PCS. Comcast recommends that PCS markets be modelled on the 194 LATAs. Use of LATA boundaries would promote diversity and innovation while allowing licensees to provide significant competition to the LEC local loop and benefit from economies of scale. Because LATAs reflect established calling patterns and are familiar to the public and the telecommunications industry, they are particularly relevant for use as PCS markets.^{34/}

Comcast's proposed integration of PCS with cable, cellular and other communications technologies will permit the accelerated availability of low-cost alternatives to local exchange service. In order for PCS licensees to compete effectively with LECs, however, PCS licensees must serve markets that approximate the current telecommunications traffic patterns of the largest LECs.

^{33/} See Notice, 7 FCC Rcd at 5700.

^{34/} Rural LATAs may need to be combined to make those markets more attractive.

Markets based on Metropolitan Service Areas ("MSAs"), Rural Service Areas ("RSAs") or the 487 Basic Trading Areas would be too small to enable licensees to utilize economies of scale and scope and would bear no resemblance to telecommunications traffic patterns. Licenses based on 49 Major Trading Areas ("MTAs"), on the other hand, would be too large to build out in accordance with strict construction deadlines and would greatly limit the number of participants in the development of PCS. The reduced number of competitors and the size of the MTAs may result in services not being provided to the smaller cities, suburbs or rural areas.

B. The Commission Should Reject the Option of a National PCS License

Comcast opposes the grant of nationwide PCS licenses.^{35/}

Although a nationwide PCS licensee would not necessarily have a monopoly in fact, its advantages would be so great that it could thwart the development of other PCS licensees and competition. For similar reasons, Comcast opposes the licensing of different market area sizes, such as one nationwide license and numerous regional licenses. Licensing different market area sizes would inevitably

^{35/} Although Comcast does not support the issuance of a national, ubiquitous PCS license, it does not oppose dbX's Extended Network PCS licensing proposal submitted in this proceeding.

create inequities for licensees of smaller PCS service areas.

The concentration of PCS operations in the hands of a few national entities would not further the Commission's pro-competitive goals. Consequently, the Commission should adopt a policy barring undue concentration. This policy would serve the public interest by ensuring that a single or a few operators do not acquire such a pervasive national presence that they impair the growth and development of new services.

V. MODIFIED LOTTERIES ARE THE BEST AVAILABLE MECHANISM FOR AWARDING PCS LICENSES

The Commission should employ modified lotteries to award licenses when there are mutually exclusive applications.^{36/} Comcast agrees with the Commission's determination that, while lotteries are not an ideal method

36/ Comcast recommends that applications for a PCS license be considered mutually exclusive only if they are received on the same day for the same spectrum in the same LATA. Given the level of interest in PCS and the finite number of licenses, Comcast expects that lotteries will be necessary in most markets.

However, if lotteries are not necessary because too few applications are filed in certain markets, Comcast recommends that the Commission grant applications on a first-come, first-served basis. If some licenses are not sought by applicants, these licenses should remain available for a reasonable period of time. These unclaimed licenses, however, should not become available to the LECs within their markets until their established period of "non-eligibility" expires. See Use of 220-222 MHz Band by the Private Land Mobile Radio Services, 6 FCC Rcd 2356, 2364 (1991).

for the assignment of licenses, they are superior to comparative hearings,^{37/} the only other available licensing mechanism.^{38/}

Lotteries allow the Commission to promote diversity of ownership and participation while reducing administrative delay and permitting efficient use of scarce Commission resources to handle the large number of applications expected. However, Comcast agrees with the Commission that the lottery process should be reformed to reduce the number of speculative applications filed. Comcast is cognizant, too, that the Commission has little interest in adopting requirements that would necessitate review of applications in advance of the lottery. The challenge, then, is to

37/ In Appendix D of the Notice, the Commission observed that "[i]t is not uncommon for [comparative hearing] litigation to take years, with participants incurring huge legal bills" which "harm both the applicant ultimately selected and the public." 7 FCC Rcd at 5762. The Commission also stated that the difficulty of agreeing on comparative criteria in the non-broadcasting context and the free transferability of licenses also tend to make comparative hearings an unappealing method of licensing. Comcast agrees with the Commission's analysis.

38/ Congress has not yet granted the Commission authority to implement competitive bidding. Even if Congress were to grant the Commission this authority, Comcast would oppose this licensing mechanism because, as the Commission suggests in its Notice, competitive bidding tends to effectively preclude smaller firms from obtaining PCS licenses. Additionally, implementing this new mechanism would require much administrative time, thus causing unnecessary delay in the licensing process.

devise a pre-selection procedure that would be essentially self-executing.

Comcast recommends that the Commission require substantial financial and technical showings to be made with each application for a PCS license. Applicants relying on personal or internal resources should be required to submit certified financial statements showing net current assets sufficient to meet the estimated costs of construction and operation, as well as all fee requirements.^{39/} Applicants also should be required to submit an independently audited balance sheet dated no more than sixty days before the date of application showing the continued availability of sufficient net current assets.^{40/} Applicants relying on a financial commitment from a lender should be required to submit evidence that the lender has examined the financial condition of the applicant and found it creditworthy.^{41/}

The Commission also should require submission of a plan for the construction and operation of the applicant's proposed PCS system, including time estimates for build-out proposals and projections for capital expenditures. With

39/ Certification by an independent auditor should be evident within the twelve month period preceding the date of submission. See Use of 220-222 MHz Band by the Private Land Mobile Radio Services, 6 FCC Rcd 2356, 2363 (1991).

40/ Id.

41/ Id.

respect to technical showings, the Commission should require sufficient engineering information to verify the technological basis for the project. Even if the Commission postpones its evaluation of the applications until after the lottery, these requirements place reasonable burdens on applicants and will ensure that they are sincere and committed to providing a PCS service.

Any administrative cost associated with handling and storing each completed application would be more than justified by the value derived from focusing the Commission's processes on serious applicants. Implementing these threshold requirements would have the added benefit of requiring potential PCS providers to define the "nuts and bolts" of their vision of PCS. Requiring the submission of concrete PCS proposals at the application stage will facilitate the speedy delivery of service.

Adoption of the Commission's proposal to review only winning applicants' filings will keep administrative costs in check. And if, after selection, the applicant is found nonetheless to be unqualified, a second lottery among the remaining applicants should be held. This procedure will reduce, if not eliminate, the incentives and efforts of non-lottery winners to engage in vexatious litigation and manipulate the administrative process to enhance the likelihood of success.

In contrast to the Notice's "postcard lottery" option^{42/}, requiring these showings will help to limit the pool of PCS applicants to those who are technically experienced and sincere.^{43/} Although requiring threshold showings may not guarantee that all applicants will be fully qualified to carry out their proposals, the addition of complementary procedural restraints will vastly improve the lottery process at little cost.

Short filing windows for PCS applications and substantial application fees^{44/} should be coupled with an obligation that qualified lottery winners make a significant payment per application within ten days of notification. To be fair, this payment should vary according to the population of the market and be held in escrow by the Commission pending licensee compliance with construction

42/ The "postcard lottery" option would invite speculative filers and allow those with vague ideas, untested technology and insufficient financing a chance to win a license temporarily.

43/ Given that the current cellular infrastructure cost approximately eight (8) billion dollars and that PCS networks may be even more capital intensive, it is reasonable for the Commission to adopt rules that winnow out applicants who never will provide service. By so doing, the Commission will conserve administrative resources.

44/ Comcast supports the Commission's proposed formula for calculating application fees. See Notice, 7 FCC Rcd at 5709-10.

deadlines.^{45/} These procedural requirements should operate to prevent speculators from "playing the lottery."

VI. POST-GRANT CONSTRUCTION, TRANSFER AND RENEWAL OF LICENSES

A. The Commission Should Adopt Strict Construction Timetables and Impose Stringent Conditions on Transfer of PCS Licenses

The Commission has a duty to ensure that, once granted, each PCS license is fully and properly utilized. One way for the Commission to achieve this end is to mandate strict construction and operation requirements.

To ensure the efficient use of PCS spectrum during the license term, the Commission should require that licensees meet certain spectrum utilization requirements at each of a number of benchmarks. Comcast suggests that the Commission adopt benchmarks similar to those used in the 220 - 222 MHz licensing of private land mobile services.^{46/} Such benchmarks would require that PCS licensees construct certain percentages of their systems by the end of two, four, six and ten years, for example. Appropriate benchmarks should vary according to population concentration within the service area. But no benchmarks should be established for areas of low population density, i.e., rural

^{45/} See infra Section VI for further discussion of construction deadlines.

^{46/} Use of the 220 - 222 MHz Band by the Private Land Mobile Radio Services, 6 FCC Rcd 2365-66 (1991).

areas. Licensees who fail to meet any of these benchmarks would automatically lose their licenses and all fees submitted to the Commission.

Prohibiting the assignment or transfer of authorizations for facilities that are not fully constructed coupled with substantial payments upon award of licenses will discourage participation by insincere applicants and speculators. To further discourage trafficking in PCS licenses, the Commission should require a PCS licensee to build and operate its system for at least three years before permitting a license transfer.^{47/}

B. A Fifteen Year License Term with a Significant
Renewal Expectancy Would Promote the Public
Interest

Comcast proposes that the Commission grant PCS licensees a fifteen year term and a significant renewal expectancy. A fifteen year license term is necessary to allow PCS licensees a sufficient period of time to implement their systems.

In contrast with cellular licensees, PCS licensees will require a longer initial term of license due to the more intensive and costly process of implementing PCS microcells. Also, because standards have not yet been set for PCS,

^{47/} These transfer restrictions should not preclude spectrum swaps within the 180 day period following award of licenses, intersystem operability agreements and joint ventures that will provide essential flexibility to those who genuinely intend to provide PCS.

additional time will be required for the deployment of PCS networks and customer terminal equipment.

Comcast believes that the public interest requires that a PCS licensee receive a renewal expectancy if it constructs and operates its system and expands the coverage of that system in accordance with Commission rules, substantially complies with applicable Commission rules, and does not otherwise engage in "substantial relevant misconduct".^{48/} In adopting a renewal expectancy for cellular licensees, the Commission has acknowledged that granting significant renewal expectancies for the past performances of licensees accomplishes a number of public interest objectives.^{49/} Because the costs of constructing and building out facilities will require expenditures by licensees that may not be recoverable before expiration of the license term, and because licensees must be able to assure investors that the regulatory process will not place their funds in unreasonable jeopardy, significant renewal expectancies are necessary to encourage investment.^{50/} The investment necessitated by the fashioning of equipment, training and

48/ See Report and Order, In the Matter of Amendment of Part 22 of the Commission's Rules Relating to License Renewals in the Domestic Public Cellular Radio Telecommunications Service, 7 FCC Rcd 719, 719 (1992).

49/ Id.

50/ Id. at 720.

marketing to meet the specific needs of particular systems is at least as considerable for PCS as it is for cellular. Additionally, significant renewal expectancies preserve continuity of service and ensure that empty promises are not used to displace service providers.^{51/} In the alternative, Comcast requests that the Commission grant PCS licensees a ten year term commencing after build-out of the licensed facilities.^{52/}

VII. REGULATORY STATUS OF PCS

A. The Nature of Particular PCS Services Should Dictate its Treatment as Private or Common Carriage

It is not necessary for the Commission to determine whether PCS services should be classified as private or common carrier at this juncture in the PCS licensing process. As the Commission has recognized in other contexts, the appropriate regulatory classification of a particular service is a difficult task that is based on consideration of, among other factors, the manner in which the service is provided. Moreover, there is no requirement that the regulatory classification of a service must be determined before spectrum is allocated.

^{51/} Id. at 719.

^{52/} See Notice, 7 FCC Rcd at 5707-08.

Once PCS service providers and their service offerings are identified, the Commission should allow a licensee to choose whether it will provide services on a common or private carrier basis. Given the variety of services expected to be offered in the PCS "family of services", allowing PCS providers to "self-select" private or common carriage for their services will provide much needed flexibility.

If PCS licensees elect to provide their services on a common carrier basis, minimal economic regulation at the federal level and preemption of state policies as necessary will ensure that PCS develops free of unnecessary regulatory burdens.^{53/} The Commission has correctly concluded that PCS services will be subject to substantial, if not intense, competition. Because there will be no captive customers, PCS should be subject to minimal regulation. Whether the Commission adopts Comcast's proposal of licensing four PCS providers per market, or adopts the Notice's proposal of

53/ The Commission should treat licensees as non-dominant carriers under the Competitive Carrier decisions and exempt them from tariff regulation at the federal level. See Policy and Rules Concerning Rates and Facilities Authorizations for Competitive Carrier Services, CC Docket No. 79-252. As was the case with cellular radio, the Commission should rule that the provision of common carrier PCS services by cable operators within their franchise service areas does not violate the telephone company-cable television cross-ownership ban of the Cable Act of 1984, as amended. See In re Teleport Communications-New York, File No. 13135-CF-TC-(3)-92, Memorandum Opinion and Order (released September 4, 1992).

licensing at least three PCS licensees per market, the presence of multiple players would supplant the need for economic regulation of the services provided.^{54/}

Greater regulatory oversight would be required, however, for LECs that are permitted to provide PCS services within their franchise telephone service areas where entry is permitted under the rules mentioned above. Under the circumstances, the Commission, at the least, must classify such PCS services as common carriage and require tariffing. The same policy should apply to any co-located wireline cellular radio affiliates of the local exchange company. These policies will better ensure that the local exchange company in conjunction with its cellular radio affiliates and PCS (once LECs are permitted to hold PCS licenses) affiliates operate under the fair dealing requirements of the Communications Act of 1934.^{55/}

Outside of the their local exchange service region, of course, there would be no reason why a LEC or wireline

^{54/} It is, of course, possible that a PCS service could develop in a market for which there is no immediate substitute or alternative. If this develops, and the service proves to be essential, it might become necessary for the Commission to exercise regulatory authority over the service provider. There is no reason to believe at this time, however, that such services will emerge or that if they do, they will become and remain monopoly services.

^{55/} Absent the protections afforded through common carrier regulation, these entities would have the incentive and the ability to thwart the development of other PCS providers and the provision of consumer services.

cellular radio operator must offer PCS service on a common carrier basis. Therefore, private carriage would be available to local exchange carriers and wireline cellular radio affiliates on the same basis as it would to all other qualified PCS licensees.

B. Cost-Based and Unbundled Interconnection with the Public Switched Network Is Essential for PCS

The Notice advances several proposals regarding PCS/landline interconnection. Comcast agrees that high quality, widely available interconnection is a key element to any vision of PCS, and particularly to establishing strong local exchange competitors and local exchange competition. The cellular experience with interconnection, along with the problems alternative access providers have faced in obtaining interconnection, should serve as examples for the Commission as it formulates policies for PCS interconnection.

The Commission should not, at this stage, attempt to establish particular interconnection standards, terms or conditions. The Commission, however, should develop a regulatory regime and streamlined procedures that will ensure that a PCS operator may obtain the type of interconnection that is reasonable for a particular PCS system at reasonable rates and on terms and conditions that are no less favorable than those offered to any other carrier, customer or the LEC itself. Comcast agrees that

the choice of the appropriate type of interconnection should remain in the hands of the PCS provider. Comcast also agrees with the Commission that disputes about the reasonableness of a particular PCS interconnection should be resolved by the Commission, rather than by states or local agencies.

The Commission's determination that, at this time, it should not preempt state and local rate regulation of PCS interconnection appears reasonable. The Commission, however, must monitor state developments to ensure that interconnection rates are not set so high as to frustrate the federal right of interconnection. Moreover, the Commission, if need be, may have to develop interconnection rates for PCS provider access to the interstate network. At this stage, it is more appropriate to delineate the framework and policies for interconnection than the specific rules.

PCS providers may need to purchase network functionalities and capabilities other than basic interconnection service from LECs. PCS operators, of course, must be able to obtain only the elements and functionalities they seek and must be obligated to pay only for those particular services at a cost-based rate. The rules and policies of the Commission's Expanded Interconnection proceedings must be examined to ensure that

each element of intelligent network capabilities and use of LEC facilities is available to all PCS providers at an unbundled, cost-based rate.

Further, the Commission must establish the right of a PCS provider to select the networks of its choice for switching and transporting PCS traffic. For example, a PCS provider may want to specify the network arrangement for calls to a PCS subscriber that transits the LEC network, the cable network and the PCS network. LEC refusal to unbundle and piece-part its network in the manner envisioned in the Commission's Expanded Interconnection proceeding could quash the emergence of PCS as a competitive communications alternative.

VIII. TECHNICAL STANDARDS

Comcast offers the following comments on discrete issues presented in the Commission's Notice regarding the scope of technical standards.

A. Standards and Standards Setting Bodies

Comcast agrees with the Commission's determination that, at this time, an advisory committee on PCS is unnecessary. Furthermore, Comcast encourages the Commission to support the telephone/electronics industry standards setting bodies that are already establishing PCS

standards.^{56/} However, Comcast urges the Commission to define a procedure and a timetable for the prompt establishment of PCS standards. The Commission should oversee the process of standard setting, minimizing delays whenever possible. PCS standards are necessary to ensure that fragmentation does not occur among operators, manufacturers and users.

By reducing the risks that initial investments in PCS infrastructure will be incompatible with those of other service providers, PCS technical standards should allow manufacturers and operators the flexibility to make large investments in PCS. Such standard setting will benefit the public because PCS customers will be able to roam from one provider's service area to another, as they do in cellular service. However, Comcast recommends adoption of a minimal number of mandatory technical standards.

B. Protection of Fixed Microwave Operations

In the Notice, the Commission proposes that fixed microwave operations be provided the same level of protection for interference from PCS operations as is provided for under Part 94 of the Commission's rules and in EIA/TIA's publication TSB10-E.^{57/} In Comcast's view, these proposed interference calculations are extremely

^{56/} See Notice, 7 FCC Rcd at 5717.

^{57/} See Notice, 7 FCC Rcd at 5718.

conservative and overly complex. In the case of interference originating from mobiles and portables with dynamically controlled power levels, geographic position, elevation, and operational status, application of these standards is entirely too cumbersome and inappropriate. The Commission should direct industry standards setting bodies to develop a procedure for calculating an interference level from PCS terminals for fixed microwave receivers as part of planned revisions to microwave path coordination criteria.

C. Power and Antenna Height Limits

The Notice solicits comment on whether a maximum base station power of 10 watts (EIRP), antenna height of 91 meters (300 feet) above average terrain, and a maximum mobile power of 2 watts (EIRP) are adequate maximum limits for PCS power and antenna height.^{58/} While the typical vision of PCS involves low-power base stations operating as microcells, some PCS services will evolve to require macrocellular coverage fill-in areas to create broader service boundaries. The Commission should not preclude these types of PCS service offerings by prematurely establishing arbitrarily low power limits on base stations and user terminals. Comcast believes the required power

58/ See Notice, 7 FCC Rcd at 5720.

levels for a PCS service should evolve from the industry standards.^{59/}

D. Coordination Distance

In the Notice, the Commission proposes to use the TBS10-E standard and a typical microwave receiver with a site of up to 1000 meters (3280 feet) above average terrain to determine coordination distances. The Commission also sets forth a table of coordination distances for various combinations of PCS base station power and antenna heights.^{60/} Because most PCS services now envisioned will use base station power levels and antenna heights that are lower than the maximum allowed, the required coordination distance table should have entries for the lower power and antenna elevations, with correspondingly shorter coordination distances (e.g., 1 watt EIRP and 10 meters AHAT). This will avoid unnecessary coordination between PCS and fixed microwave licensees.

E. License Modifications

The Notice proposes that, initially, applicants should not be required to specify antenna sites for each base

^{59/} Comcast recommends that the power level limits established for cellular be adopted for PCS, with the knowledge that, in all but a few applications, actual operating power levels for a PCS service will be well below current Part 22 limits.

^{60/} See Notice, 7 FCC Rcd at 5722, Table 1.

station and seeks comments on whether licensees should be required to apply for modification of licenses to specify any base station sites not initially authorized by the Commission.^{61/} Many configurations of PCS envision the use of hundreds and even thousands of low power radio ports providing communications within a PCS service area. A requirement to specify the location and operating parameters of all these envisioned base station antennas would constitute an undue regulatory burden.^{62/} Instead, Comcast proposes that the Commission use some reasonable cutoff limit on base station power and antenna height.

Comcast proposes that only those base stations exceeding 10 watts EIRP and 20 meters in elevation should be subject to location specification both in initial applications and modifications. Notwithstanding this limit, PCS service providers should be required to coordinate all applicable sites, as specified in other sections of the proposed rules.

61/ See Notice, 7 FCC Rcd at 5711.

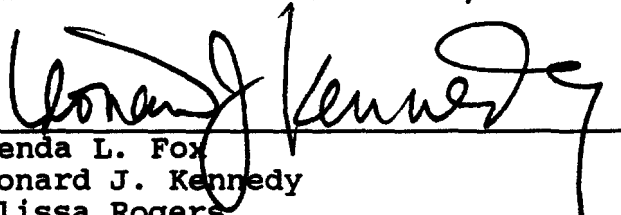
62/ The standard use of longitude and latitude coordinates is not meaningful when dozens of radiating antennas could be located within an area specified by 1 second of longitude and latitude.

IX. CONCLUSION

Comcast urges the Commission to incorporate the foregoing proposals into the PCS regulatory structure. The adoption of these proposals is essential to the ability of PCS to introduce vigorous competition into the provision of local exchange service.

Respectfully Submitted,

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APPENDIX